

## Patent Abstracts of Japan

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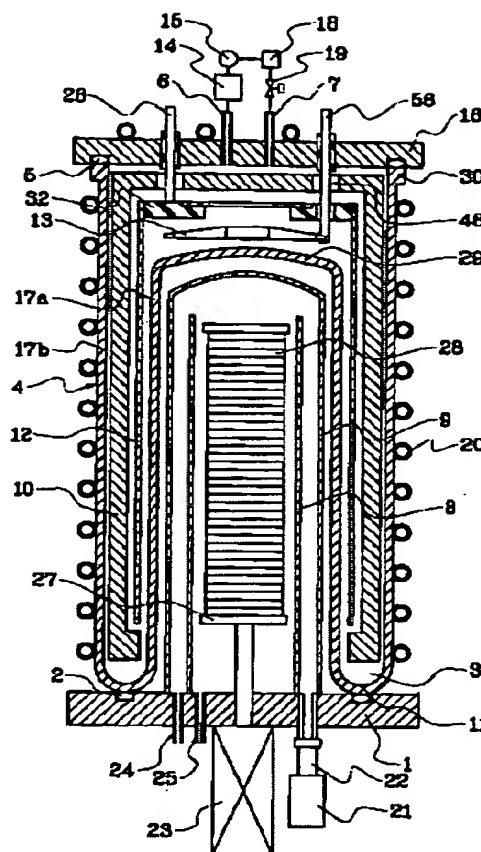
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INVENTOR : WATANABE FUMIO;

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TITLE : VERTICAL HEATING DEVICE



**ABSTRACT :** PROBLEM TO BE SOLVED: To attain heating in a short time by increasing efficiency of heating, to shorten a processing time in one cycle by quickening the descending speed of a temperature, to attain the introduction and discharge of a work in a normal temperature, to prolong the service life of a heater, to reduce power consumption, and to prevent the contamination of an outer tube side.

**SOLUTION:** A vacuum tube 4 is arranged so that an outer tube 9 can be surrounded, and a vacuum space 3 is formed in the vacuum tube 4, and heaters 12 and 13 for heating the outer tube 9 from the surrounding are arranged in the vacuum space 3. Then, a vacuum heat insulating part is formed of the vacuum space 3, so that the heating of the outer tube 9 can be efficiently realized by the heaters 12 and 13 made of graphite arranged in the vacuum space 3. The heaters 12 and 13 arranged in the vacuum space 3 and the outer tube 9 side are sealed airtightly by the vacuum tube 4, so that powder-shaped dusts generated by the heaters 12 and 13 can be prevented from being transmitted to the outer tube 9 side.

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